eLINK

elebia®

smart lifting solutions

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SAFETY RECOMMENDATIONS

This is the user manual of the eLink. Before using the eLink, users must read and understand this user manual, as well as the Elebia automatic hook user manual.

Failure to review and utilize recommended applications, operation and maintenance instructions may result in serious injury to the operator and others.

As the manufacturer has no direct control over the operation of the eLink or the elebia® auto hook, the safe handling of the equipment is therefore the responsibility of the user and of the operating personnel.

It is the sole responsibility of the operator to ensure the correct manipulation and handling of any load while using any of the Elebia products. Automated processes in any lifting operation, whether attaching and/or releasing load, or other, must always be submitted to visual inspection of the operator. Elebia designs and produces automated lifting solutions which enhance safety and productivity but can never replace the responsible and provident handling of all lifting processes.

In the event of breakdown or malfunction, withdraw the device and consult the technical service.

Use this QR code to access our helpdesk.
There, you'll find user manuals, Q&A.
You can also open a ticket if you need support.

USER MANUAL & HELPDESK

click here

INTRUSION PREVENTION

(Cloud version only)

The eLink, in its cloud version, can only be controlled through its incorporated web application. Under no circumstances does it allow an external connection to take remote control. Instructions from the cloud application are accessed by the eLink and are never imposed. Local action will always prevail, especially in terms of cybersecurity and IT security.

External communication is facilitated through a pair of embedded keys and a unique identification token, which are integrated into the eLink during software installation.

These measures are implemented deliberately to ensure that only those actions previously defined by Elebia can be executed on the eLink.

DESCRIPTION

The eLINK is a central data acquisition and control system which allows control of the Elebia lifting hooks, through a web application. The eLINK's in/out capabilities allow crane automation using the hook's sensor data. All in a quick, flexible and simple way. It can be used to increase productivity while enhancing safety.

Monitoring: *hook status can be monitored through the WebApp.*

Data Logger: *the eLink itself generates a Log file with all the events that are carried out while the eLink is operating, saving each event with date and timestamp thanks to the Real Time Clock that the device carries.*

Data access: *the log file can be accessed through the WebApp.*

Gateway: *eLink allows communication between the hooks, the crane, the remote controls, PLC, computers and other devices.*

Automation: *logical rules can be defined in order to perform different actions using hook status and sensor values.*

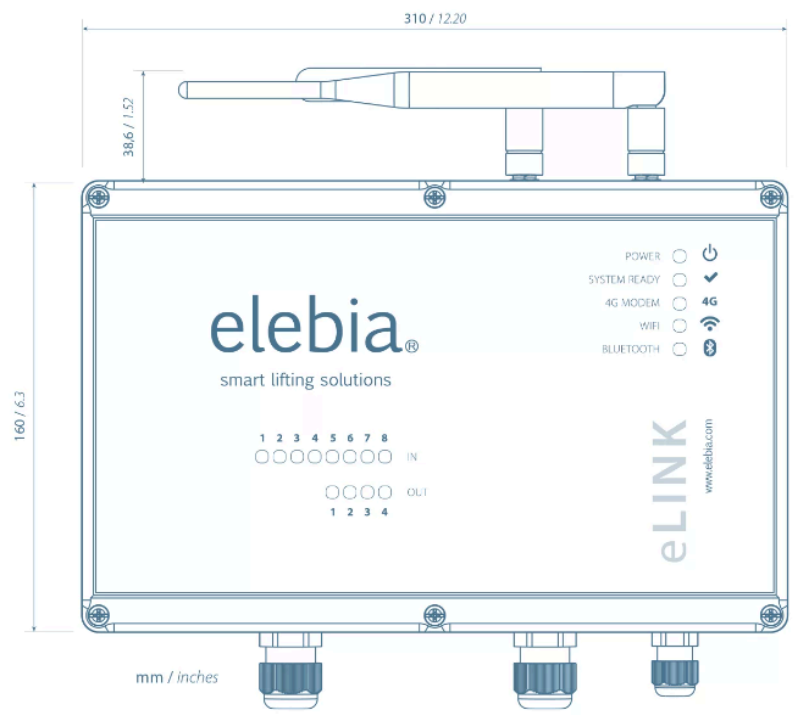
Remote Maintenance: *Elebia service team can perform preventive and remote maintenance and support using eLink data.*

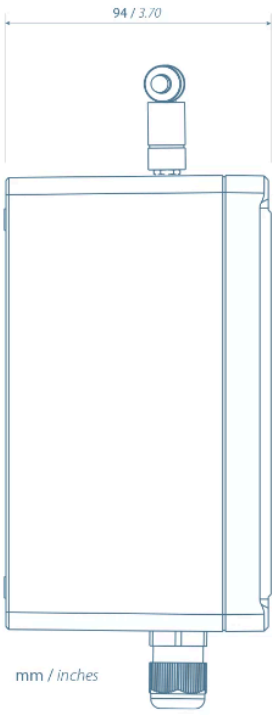
Over the Air Updates: *updates, bug fixes and new features can be delivered by OTA*

The eLINK is connected with:

1. **the user:** eLINK serves a WebApp and users can use smartphone, tablet or PC to connect using Wi-Fi. This allows to:
    a. Hook control:
        - Open / close hooks, either individually or in groups.
        - Set up hook parameters.
        - Monitor hook status (open/closed, battery level, sensors, weight lifted,...).
    b. eLink control:
        - Add / remove hooks.
        - Manage users / profiles.
        - Setup wired i / o.
        - Setup radio communication parameters.
        - Define output state using logical functions. Functions can use hook status data as well as other inputs.
2. **the crane**: through 8 dry contact inputs and 4 relay contact for the outputs. Optional coms: CAN Bus, RS232, RS485 RJ45, Profinet
3. **the lifting hooks**: through radio communication.
4. **others**: PLC'c, laser sensors, lights, buzzers, screens,...

SPECIFICATIONS





weight 1,25 Kg

eLINK Specifications

Single-Board Computer	_____	Cortex-A17 Quad-core SoC*
Radio Frequency Communication	_____	868.95 / 904 / 917.5 / 924.1 MHz
CANbus	_____	1 (optional))
Inputs	_____	8 dry contact
Outputs	_____	4 relay contact. Max 1A
4G Module	_____	Optional
Real Time Clock (RTC)	_____	Yes
Internal Storage Memory	_____	32GB
Battery Button for RTC	_____	CR2032
Input Source	_____	110 / 230V AC (optional 48V CC or 24V CC)
Wi-fi	_____	802.11 b/g/n/c double band (2.4 & 5 GHz)
Bluetooth	_____	4.2
IP Code	_____	IP65
Temperature Range	_____	-20°C to 60°C
RF Antenna	_____	862 to 930 MHz / 50 Ohms

Swivel Dipole Antenna Specifications

Frequency	_____	902 to 928 MHz
Nominal Impedance	_____	50 Ohms
VSWR	_____	2.0 Max. in Band
Gain	_____	3.0 dBi
Polarization	_____	Vertical
Power	_____	1W max.

FC IC CE ARIB

REGULATORY STANDARDS

- Directive on machine safety (D89/37/EEC).
- UNE-EN 1050
- UNE-EN ISO 12100-1
- UNE-EN ISO 12100-2
- UNE-EN 61000-6-4
- UNE-EN 61000-6-2
- UNE-EN 1677
- EN 10204 3.1.B
- Assurance of production quality in accordance with ISO 9001.
- Each mechanism is delivered with the CE stamp and a declaration of CE conformity.
- D89/391/EEC
- D89/654/EEC
- D89/655/EEC
- D89/656/EEC
- D92/58/EEC

FCC and IC

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be colocated or operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures.

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna; Increase the separation between the equipment and receiver.

INSTALLATION

1. **Choosing the installation location:**
    - Radio Range: eLink needs to be within the radio communication range of the hooks to be controlled (<100m).
    - Wi-Fi Range: eLink generates its own Wi-Fi network, allowing users to connect and manage its features. Users need to be within the Wi-Fi range.
    - Select a spot where the eLink is not obstructed by metal, as this can limit or even disable both radio and Wi-Fi communications. If need to be in a metal box, both antennas must then be mounted out of the metal enclosure (you will need SMA extenders to do so).
    - Wiring: It is to be installed near to the crane control box, to establish direct wired connections with the specific crane elements that require control.
    - Surface Area: A reserved surface of 350x300mm is needed to mount the eLink.
2. **Wall mount:**
    - eLink must be secured to a flat surface, using 4 screws and the template included in the box.
3. **Power supply:**
    - Plug the eLink into a wall socket (110 / 230V AC).
    - Optional 48V CC or 24V CC power supply are available.
4. **Connections:**
    - eLink has 8 dry contact inputs and 4 Relay Contact outputs, as well as serial bus options (CAN BUS , RS232, RJ45,...).
    - Depending on your application you should make the desired electrical connections. Read the 'Examples' section for more information.

Example of eLink installed to crane

eLink installation process

WIFI CONNECTION AND LOG IN

eLink Wi-Fi can be configured as a Hotspot or connected to a LAN.

Hotspot connection

IP address: http://10.42.0.1:3000
Wifi ID: Elebia_eLink_SNXXXXX
Password: eLinkConXXXXX

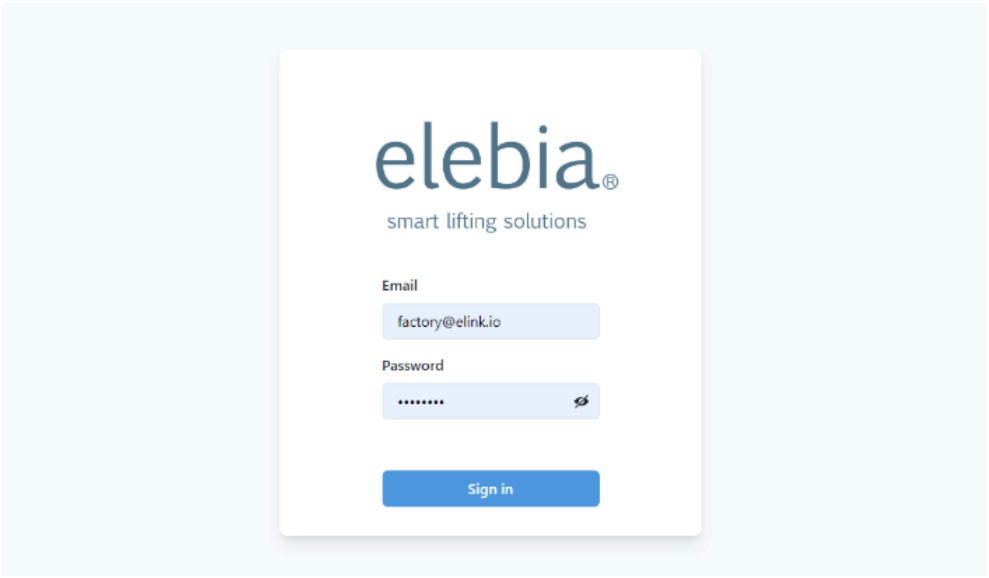
For your convenience, there is a sticker with the login instructions located on one side of the eLink.

1. Use your smartphone, tablet or PC to connect to '**Elebia_eLink_SN**xxxxx' Wi-Fi and type the Wi-Fi password '**eLinkCon**XXXXX' where XXXXX is the serial number of your eLink. *If you don't find the Wi-Fi named '**Elebia_eLink_SN**xxxxx', make sure you are within the eLink Wi-Fi range and eLink is connected to a power source, and the 'Ready' and 'Wi-Fi' led status are 'on'.*
2. Connect to the eLink IP by one of the following options:
    a. Open a browser on your device and type IP found on the eLink sticker.
    b. Use this QR code.

click here

This QR code can also be found in the eLink. *A second copy of the sticker is delivered in the box. We advise you to place it in a spot where users might have easy access to.*

3. Save the IP in your 'favorites' as '**Elebia eLink**'
4. Login with username '**admin@elink.io**'' and password '**password**'. For security reasons, change this password once you are logged in *(go to Configuration>Users)*.



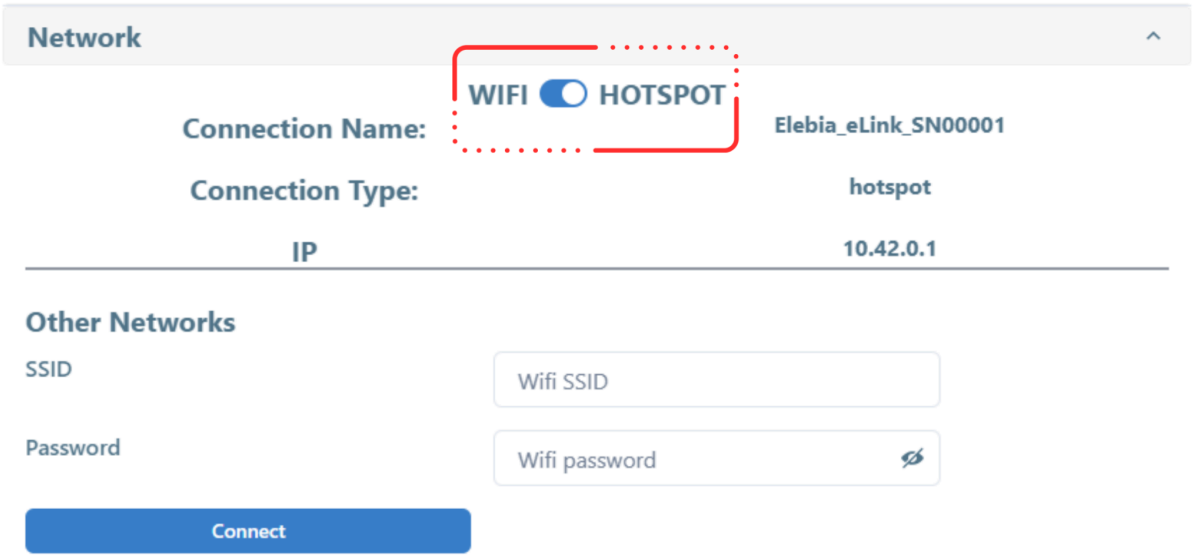
Local area network (LAN) connection.

IP address: http://YourFacilitieseLinkIPAddress:3000

Wifi ID: YourFacilitesWifiName

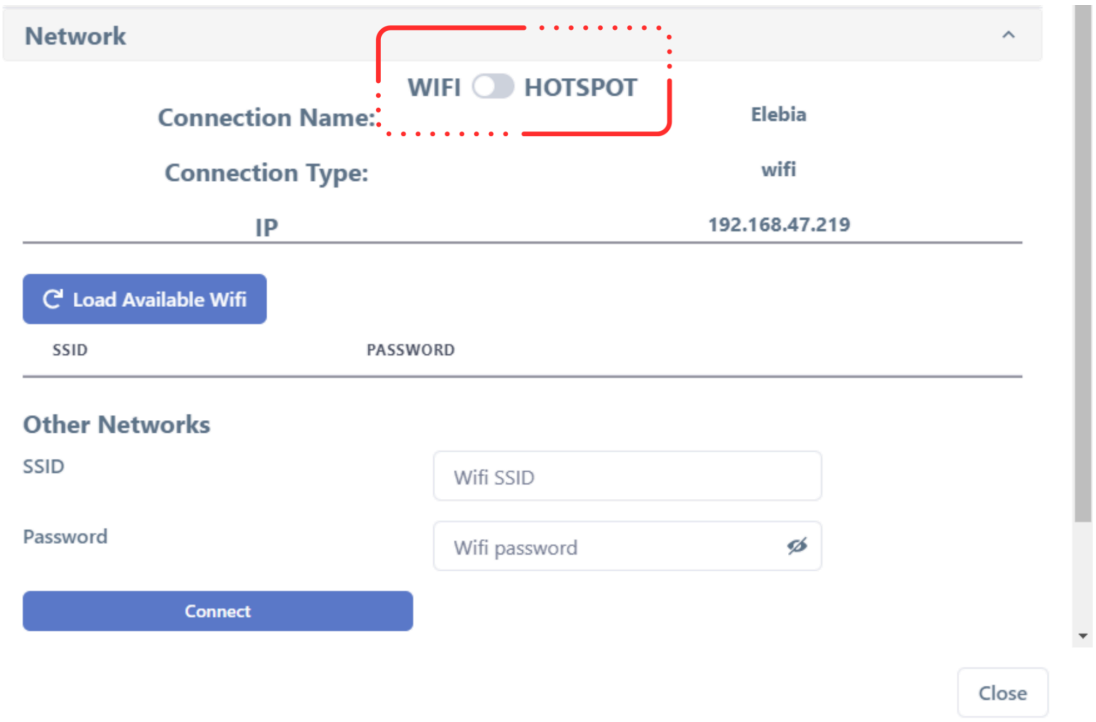
Password: YourFacilitesWifiPassword

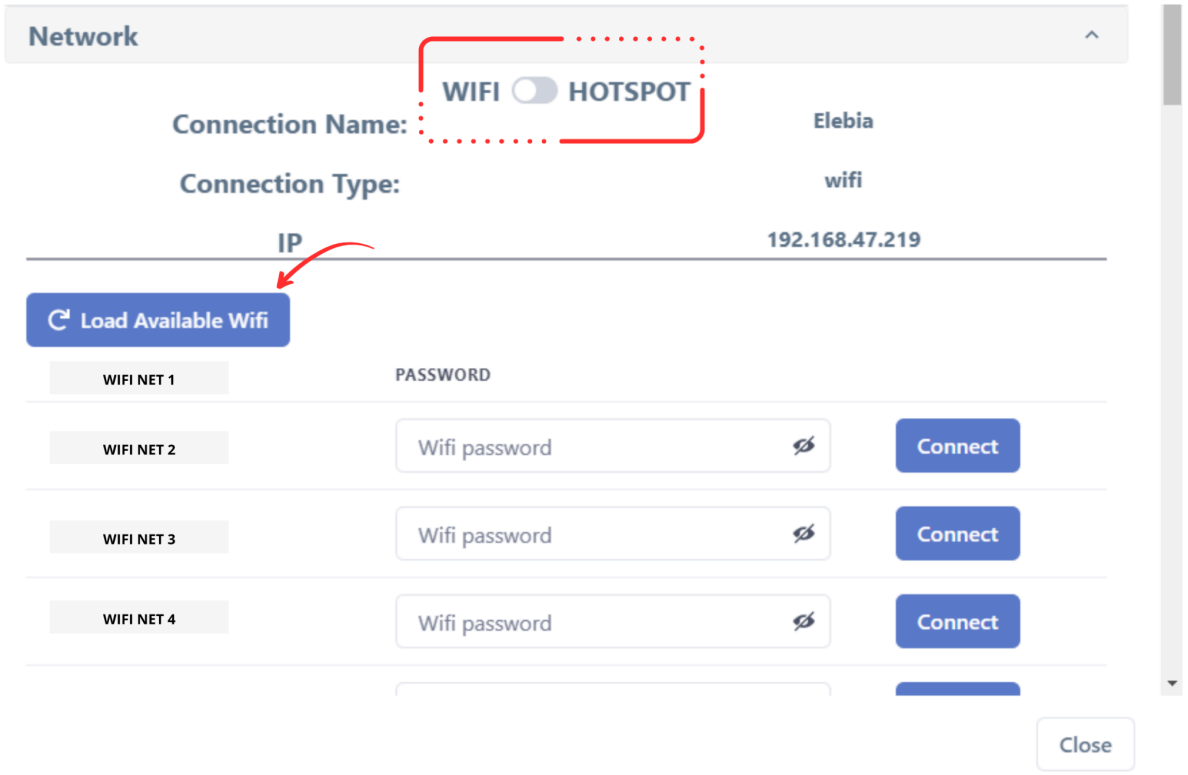
By default the eLink is set to hotspot, but it can be connected to a LAN using WiFi (*Configuration>connection>hotspot/WiFi*).



The first time you switch to LAN, you will have to type your facilities LAN SSID and password using the 'Other Networks' section placed at the bottom of the WIFI section, and press the Connect button to go ahead with the change.

If your credentials are valid, eLink will connect to the LAN.





When you switch from hotspot to LAN, the eLink will indicate the new IP address you'll have to connect to get access to the App. Save the IP in your 'favorites' as '**Elebia eLink (LAN)**'.

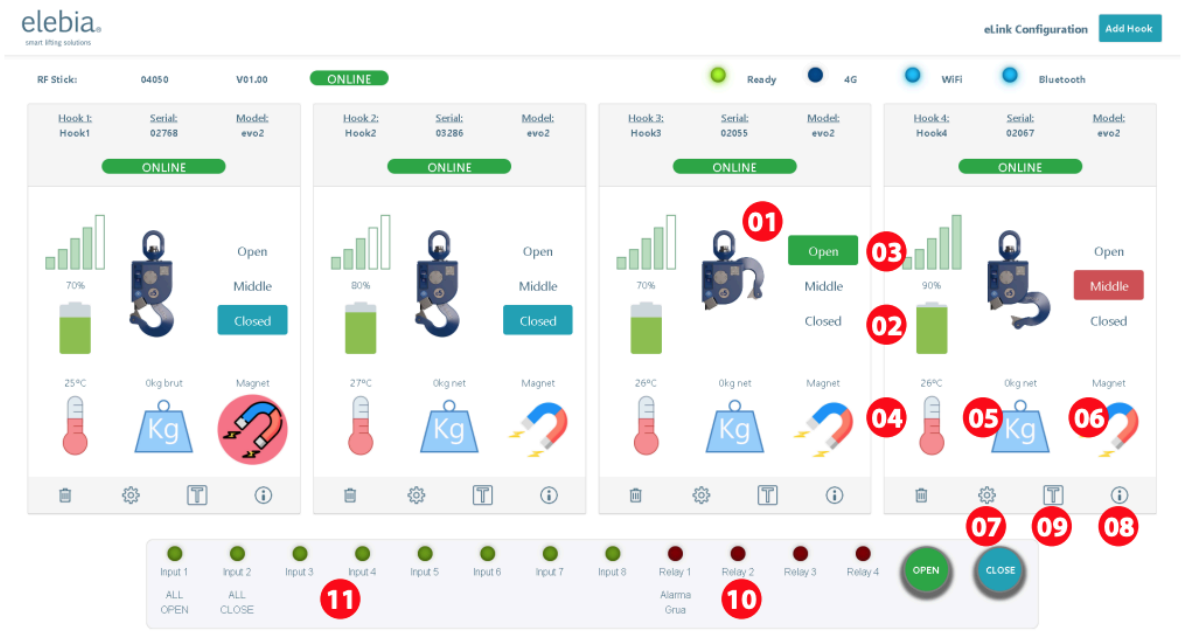
ATTENTION: Please note that you will need to contact your IT department to assign a fixed IP address to the eLink device. Without a fixed IP address, the device will receive a different IP address with each new connection.

In case WiFi LAN connection is lost, or if the eLink is rebooted, it will switch to a hotspot. Then you'll need to connect to the IP saved in your favorites as '**Elebia in hotspot**'

SET UP

Hook setup:

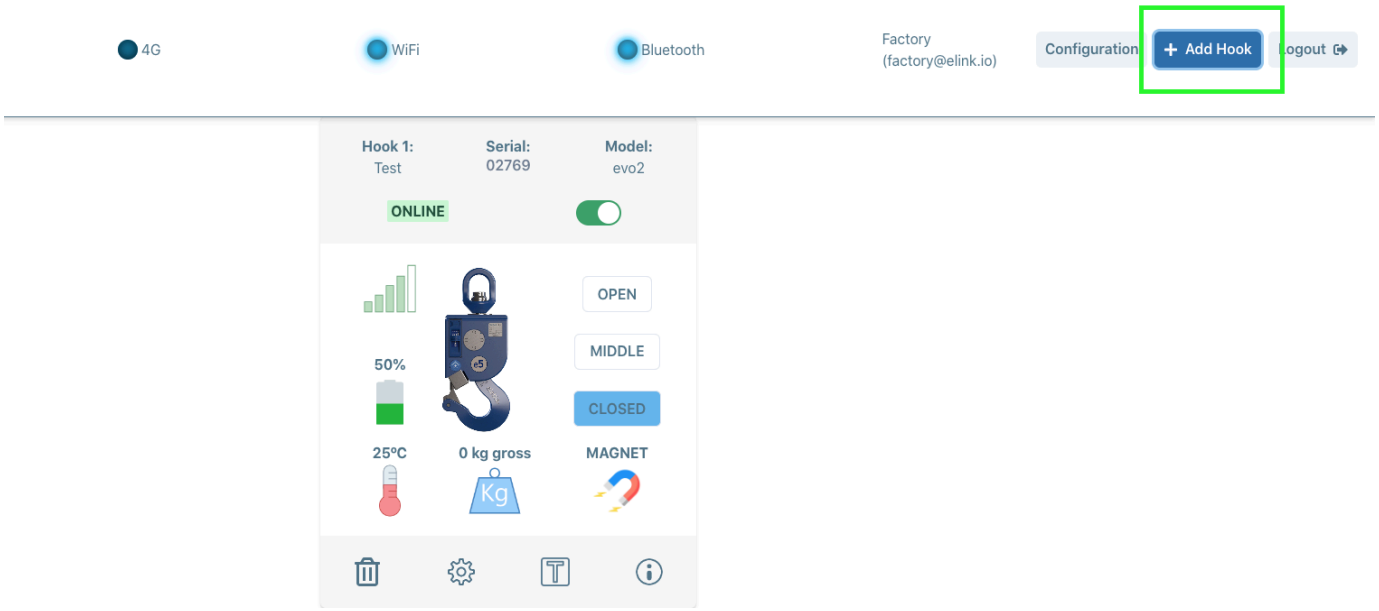
Upon customer request, the eLink will be delivered with the hooks already registered. The main screen will display the following:



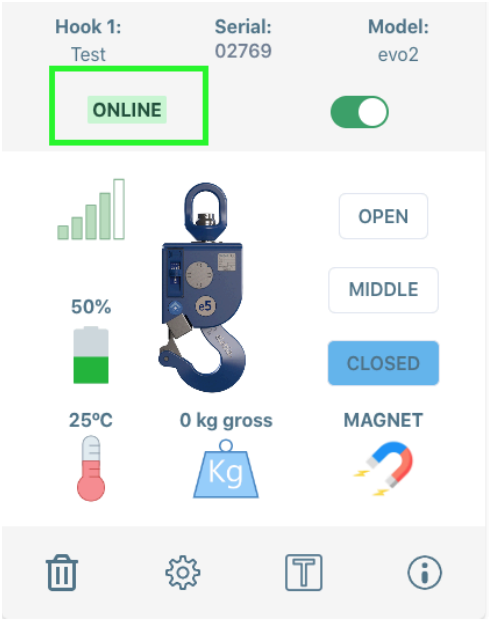
01 Hook status
02 Battery level
03 Radio strenght
04 Temperature
05 Weight
06 Magnet sensor
07 Hook settings
08 Hook info center
09 Tare / Gross / Net weight
10 Relay Status
11 Input Status

Registering new hooks: If you need to register hooks, it is an easy and quick process.

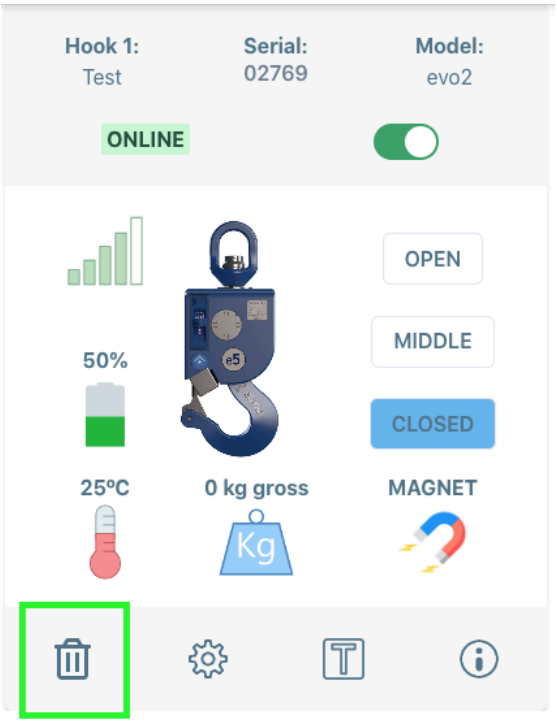
1. Logg In as Admin.
2. Click the button on the top right area, **Add hooks.**
3. Type the serial number and give it a name.



Hook will appear, displaying its status.



To remove a hook: click the bin icon on the bottom area..



- Setup Users:

  The eLink uses profiles to determine what features can be accessed. That's why It is very important to assign the right profile to each user.

  There are 4 profiles or kind of users:

  - **User**: those who will be operating the autohooks. This profile only allows hook operation and can't modify the settings.
  - **Admin:** those (within the company) in charge of managing the hooks and the eLink. This profile allows you to adjust the basic settings, add/remove hooks, ... **It is not for daily operation of the hook.**
  - **Service:** this profile is for Elebia technical service only.
  - **Factory:** this profile is for Elebia personel only.

'User ' is the lower level and 'Factory' is the higher. The higher the profile, the more options are available in the menus.

All the profiles need a password to login. Each user can modify its own password. Admin can create, delete and modify User passwords. *(Configuration>Users)*

		User level			
Features		**User**	**Admin**	**Service**	**Factory**
App login	Hotspot	x	x	x	x
	LAN	x	x	x	x
	Cloud		*	x	x
hook	info center	x	x	x	x
	tare	x	x	x	x
	net/gross	x	x	x	x
	name		x	x	x
	serial		x	x	x
	disable		x	x	x
	delete		x	x	x
	add		x	x	x
	settings			x	x
	Open		x	x	x
	Close		x	x	x
eLink	Outputs (Relays)			x	x
	Inputs (Wired)			x	x
	Inputs (Radio)			x	x
	Radio			x	x
	Users		x	x	x
	Update environment				x
	Update		x	x	x
	Other settings			x	x
	Network		x	x	x
	Event log		x	x	x

Access the latest version of the table here.

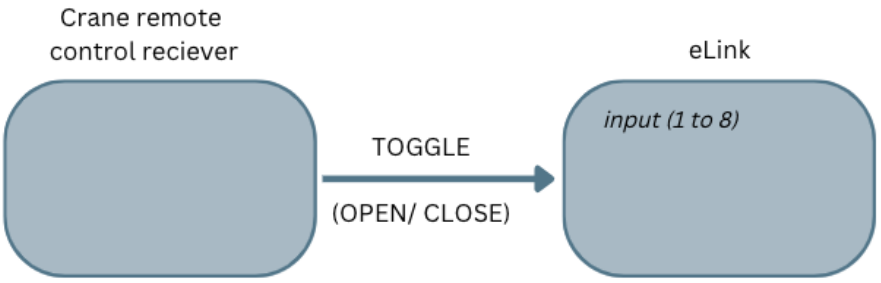
This table has the default values. It can be customized for every eLink.

@bookmark WIRING EXAMPLES

Here we share some wiring examples for different uses of the eLink. If you need support or have any doubts, feel free to contact us (open a ticket in helpdesk).

Example1: **Use the existing crane remote control to open/close the Elebia automatic hooks.**

- Customer wants to control one Elebia hook with the existing crane remote control.
- Crane remote control has 1 available button.

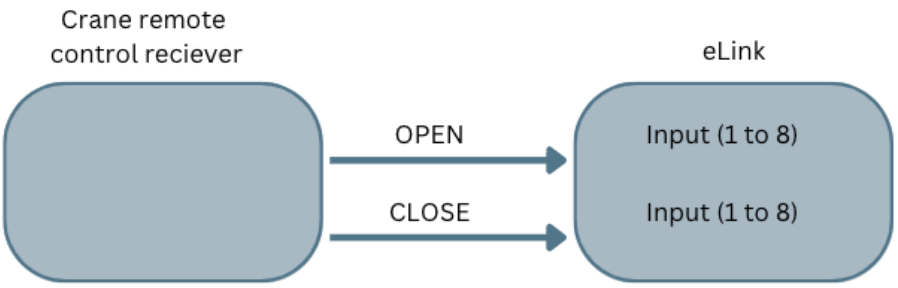


wiring diagram

once wires are connected, proceed with the set up:

1. Open the web app.
2. Log in.
3. Go to eLink configuration .
4. go to the Inputs & outputs section and select INPUTS (Wired).
5. Select the input number where the wires from the crane radio receiver have been connected.
6. Select the hook you want to control.
7. Select 'toggle' from the drop down menu.

If a customer has 2 available buttons and wants 2 separate orders for open and close, it can be done in the same manner, but using 2 wired inputs and instead of 'toggle', select 'open' and 'close' on the drop down menu.



In this manner, up to 8 hooks can be controlled with toggle function, and up to 4 hooks on the open/close function.

Example 2: **Interlock. Disable vertical movement of the hoist while the hook is in transition (hook not fully open or fully closed).**

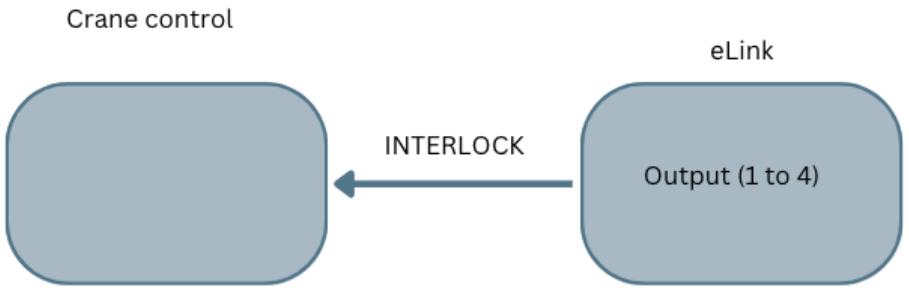
- Crane should never lift until the hook is fully closed or fully opened.
- Customer wants to disable vertical movement of the crane while the hook is in transition (hook not fully open or fully closed).
- By doing so, it will prevent accidents and will increase lifespan of the crane and the hook.

wiring diagram

once wires are connected, proceed with the set up:

1. open the web app.
2. log in.
3. go to eLink Configuration.
4. go to the Inputs & outputs section and select OUTPUTS (Relays).

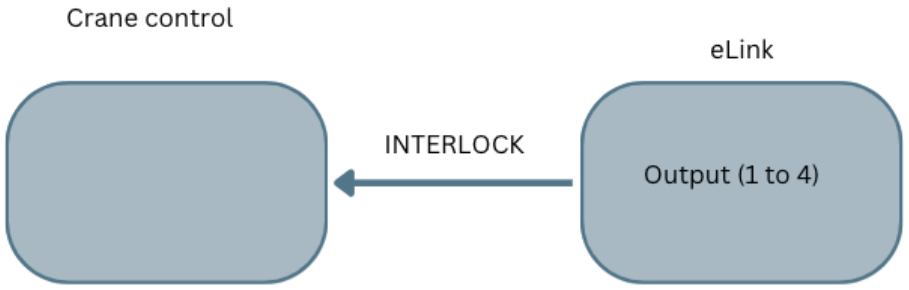
5. select the output number where the wires from the crane control have been connected.
6. type the formula: ([hook1.state!=open]&&[hook1.state!=closed]&&[hook1.state!=disabled]).



wiring diagram

Example 3: **Multiple Interlock. Disable vertical movement of the hoist/s while hooks are not fully open (both) or fully closed (both).**

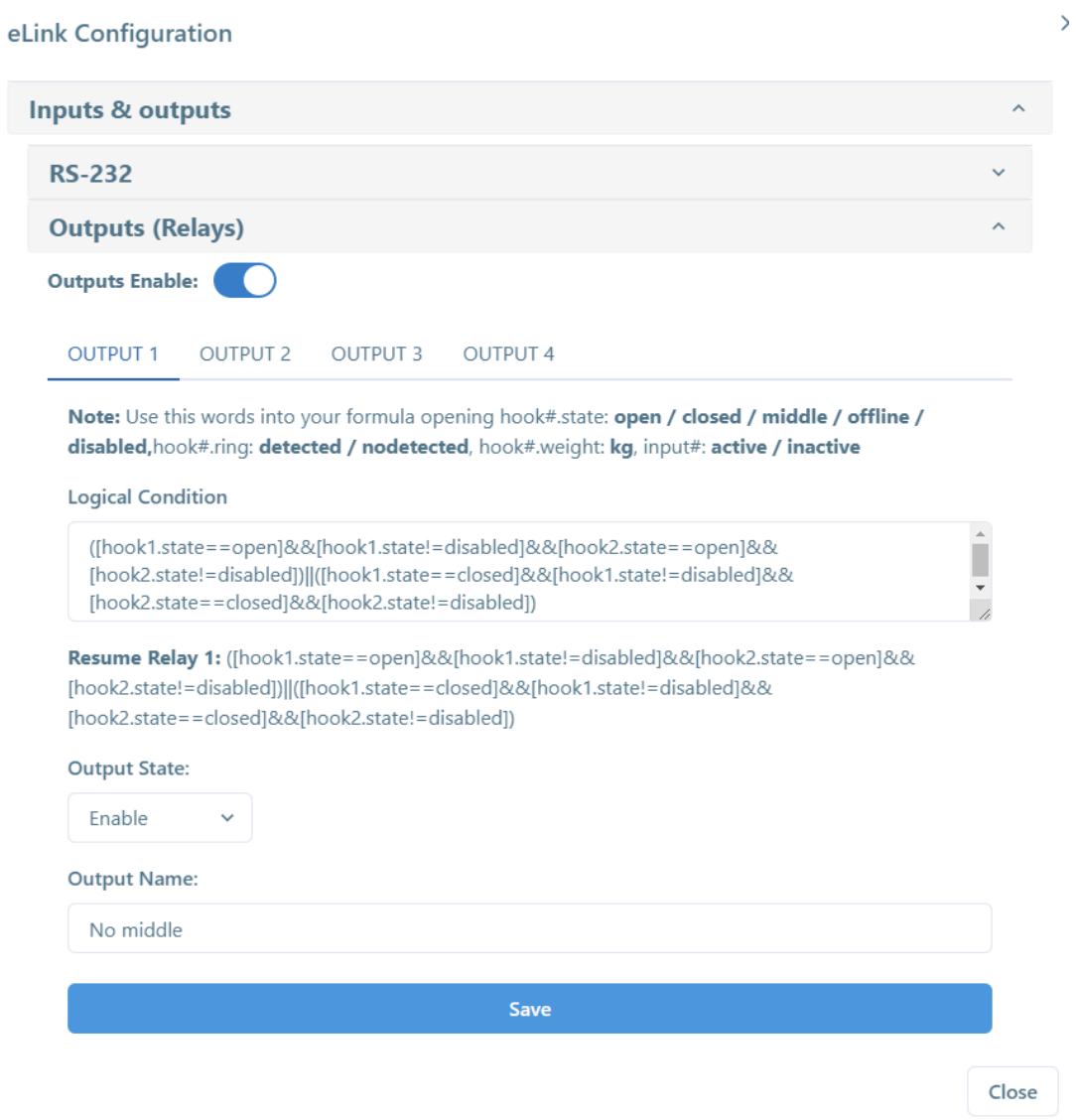
- In a multi-point lift, a crane should never try to lift a load if some hooks are opened and some are closed or some are in transition.
- Customer wants to disable vertical movement of the crane while hooks are not fully open or fully closed (simultaneously).
- By doing so, it will prevent accidents and will increase lifespan of the crane, the beam, the hook and the goods being lifted.



wiring diagram

once wires are connected, proceed with the set up:

1. open the web app.
2. log in.
3. go to eLink Configuration.
4. go to the Inputs & outputs section and select OUTPUTS (Relays).
5. select the output number where the wires from the crane control have been connected.
6. type the formula: ([hook1.state==open]&&[hook1.state!=disabled]&&[hook2.state==open]&&[hook2.state!=disabled])||([hook1.state==closed]&&[hook1.state!=disabled]&&[hook2.state==closed]&&[hook2.state!=disabled])
7. Select the otput state, which can be Enabled or Disabled. Enabled in this case.



WARRANTY

The guarantee for elebia® eLink is for 2 years and covers parts and labor for the use envisaged and recommended in the system's manual of use. Maintenance operations, and the materials and labor involved therein, are exempt from guarantee.

Distributor / Service:
Date:

CONFORMITY DECLARATION AND MANUFACTURER'S CERTIFICATE

ELEBIA AUTOHOOKS, S.L.U., with registered office at Plaça Pere Llauger Prim, Nau 10-11 Polígon Industrial Can Misser, 08360 Canet de Mar, (Barcelona) Spain, Tax Identification Certificate: B65770265, and ISO 9001 certificate No. 9000041.

DECLARES:

Under its sole responsibility, that the following model eLink remote control for the elebia® automatic hook system, with serial number _____, complies with the EC Machinery Directive 2006/42/EC of the European Parliament and of the Council, of 22 June 1998, on the approximation of the laws of the Member States relating to machinery, and 2004/108/EC, on the approximation of the laws of the Member States relating to electromagnetic compatibility, and has been manufactured in accordance with the following harmonized standards:

EN 300 220 TELECOMMUNICATIONS
EN 301 489 ELECTROMAGNETIC COMPATIBILITY EN 60730 LOW VOLTAGE

As stipulated by EC Machinery Directive:

- CE symbol fixed to the eLink
- Technical documentation filed on the manufacturer's site.

Authorized signatory:

Oscar Fillol Vidal
CEO of ELEBIA AUTOHOOKS

Barcelona, June 30th, 2023